

WHAT IS CLAIMED IS:

1 1. A method of therapeutically heating a collagenous structural support
2 tissue of a pelvic support system to a target temperature, the method comprising:
3 delivering energy to the structural support tissue; /
4 monitoring the effect of the delivery of energy on the structural support tissue
5 to estimate a treatment time of reaching the target temperature;
6 comparing the estimated treatment time with desired treatment time(s);
7 adjusting a power level of the energy if the estimated treatment time is not
8 coincident with the desired treatment time(s).

1 2. The method of claim 1 wherein monitoring the effect of the delivery of
2 energy comprises:
3 measuring an elapsed time of delivery of the energy to the structural support
4 tissue;
5 measuring a temperature of the tissue and a temperature rate of change of the
6 structural support tissue; and
7 using the elapsed time of delivery of the energy, measured temperature of the
8 structural support tissue, and temperature rate of change at the structural support tissue to
9 calculate the estimated treatment time.

1 3. The method of claim 2 wherein measuring the temperature and the
2 temperature rate of change at the structural support tissue is carried out only after a
3 predetermined amount of time after commencement of a delivery of energy to the structural
4 support tissue.

1 4. The method of claim 3 wherein the predetermined amount of time is
2 between approximately 25 seconds and 45 seconds.

1 5. The method of claim 2 wherein measuring the elapsed time,
2 temperature of the structural support tissue, and the temperature rate of change at the
3 structural support tissue is repeated at predetermined intervals during the delivery of the
4 energy.

- 1 6. The method of claim 2 wherein the measured temperature of the
2 structural support tissue and temperature rate of change of the structural support tissue is an
3 average temperature and average temperature rate of change over a predetermined interval.
- 1 7. The method of claim 6 wherein the predetermined interval is
2 approximately six seconds.
- 1 8. The method of claim 7 wherein adjusting the power level is carried out
2 after each predetermined interval.
- 1 9. The method of claim 1 wherein if the estimated treatment time is less
2 than the desired treatment time(s) then the adjusted power level is lower than an original
3 power level.
- 1 10. The method of claim 1 wherein if the estimated treatment time is
2 greater than the desired treatment time(s) then the adjusted power level is higher than an
3 original power level.
- 1 11. The method of claim 1 wherein adjusting the power level comprises
2 adjusting the power level in step-wise adjustments of ± 1 Watts, ± 2 Watts, or ± 5 Watts.
- 1 12. The method of claim 11 wherein a size of the step-wise adjustment is
2 selected based on the difference between the estimated treatment time and the desired
3 treatment time.
- 1 13. The method of claim 1 wherein the target temperature is between
2 approximately 65°C and 75°C.
- 1 14. The method of claim 1 wherein the desired treatment time is between
2 approximately 150 seconds and approximately 240 seconds.
- 3 15. The method of claim 1 wherein adjusting is automatically carried out
4 by software in a control system memory.
- 1 16. The method of claim 1 wherein the structural support tissue is a
2 collagenated tissue in an endopelvic fascia.

1 17. The method of claim 1 further comprising accessing the structural
2 support tissue transvaginally.

1 18. The method of claim 1 further comprising accessing the structural
2 support tissue laparoscopically.

1 19. A system for delivering energy to a collagenous structural support
2 tissue of a pelvic support system, the system comprising:

3 a processor;

4 a memory coupled to the processor, the memory configured to store a plurality of
5 code modules for execution by the processor, the plurality of code modules comprising:

6 a code module for delivering energy to the structural support tissue;

7 a code module for estimating a treatment time of reaching a target
8 temperature;

9 a code module for comparing the estimated treatment time with desired
10 treatment time(s); and

11 a code module for adjusting the delivery of the energy to an adjusted power
12 level if the estimated treatment time is not coincident with the desired treatment time(s).

1 20. The system of claim 19 wherein the code module for estimating the
2 treatment time of reaching the target temperature comprises:

3 a code module for measuring an elapsed time of delivering energy to the
4 structural support tissue;

5 a code module for measuring a temperature and a temperature rate of change
6 at the structural support tissue; and

7 a code module for using the measured elapsed time, measured temperature and
8 temperature rate of change to calculate an estimated treatment time.

1 21. The system of claim 19 further comprising a power supply coupled to
2 the processor.

1 22. The system of claim 21 further comprising an applicator coupleable to
2 the power supply for delivering the energy to the structural support tissue.

1 23. A method of therapeutically heating a collagenous structural support
2 tissue of a pelvic support system, the method comprising: /
3 delivering energy to raise a temperature of the structural support tissue to a
4 first target temperature; and
5 dynamically adjusting a power level of the energy after the structural support
6 tissue has substantially reached the first target temperature so as to allow the structural
7 support tissue to dwell at substantially a second target temperature for a desired amount of
8 dwell time.

1 24. The method of claim 23 wherein adjusting the power level comprises
2 making an adjustment of the power level upon entry into dwell which is either a constant
3 value drop from an entry power level or a power level drop which is proportional to a rate of
4 change of the tissue temperature at an entry point into the dwell.

1 25. The method of claim 23 wherein the first target temperature is
2 substantially equal to the second target temperature.

1 26. The method of claim 23 wherein the first and second target
2 temperatures are between approximately 70°C and approximately 75°C.

1 27. The method of claim 23 wherein the desired amount of dwell time is at
2 least approximately 30 seconds

1 28. The method of claim 23 wherein the desired amount of dwell time is
2 between approximately 20 seconds and approximately 45 seconds.

1 29. The method of claim 23 wherein adjusting the delivery of energy
2 comprises reducing a power level of the delivery of energy at least once during the dwell
3 time.

1 30. The method of claim 23 further comprising:
2 measuring a temperature of the structural support tissue at selected intervals
3 during the dwell time; and
4 further adjusting delivery of energy to the structural support tissue if the
5 measured temperature of the structural support tissue is not within an acceptable range from
6 the second target temperature.

1 31. The method of claim 23 wherein further adjusting delivery of energy
2 comprises raising or lowering the power level less than approximately 2 Watts.

1 32. A system for delivering energy to a structural support tissue of a pelvic
2 support system, the system comprising:

3 a processor;

4 a memory coupled to the processor, the memory configured to store a plurality of
5 code modules for execution by the processor, the plurality of code modules comprising:

6 a code module for delivering energy to raise a temperature of the structural
7 support tissue to a first target temperature; and

8 a code module for dynamically adjusting a power level of the energy after the
9 structural support tissue has substantially reached the first target temperature so as to allow
10 the structural support tissue to dwell at substantially a second target temperature for a desired
11 amount of dwell time.

1 33. The system of claim 32 further comprising a power supply coupled to
2 the processor.

1 34. The system of claim 33 further comprising an applicator coupleable to
2 the power supply for delivering the energy to the tissue.

1 35. A method of treating a tissue of structural support tissue of a pelvic
2 support system, the method comprising:

3 delivering energy to the structural support tissue at a first power level;

4 estimating a treatment time of reaching a first target temperature;

5 comparing the estimated treatment time with desired treatment time(s) for
6 reaching the first target temperature;

7 adjusting the delivery of the energy to an adjusted power level if the estimated
8 treatment time is not coincident with the desired treatment time(s), wherein the adjusted
9 delivery of energy is sufficient to cause the first target temperature to be reached in
10 substantially the desired treatment time(s); and

11 dynamically adjusting a power level of the energy to a modified power level
12 after the structural support tissue has substantially reached the first target temperature so as to
13 allow the structural support tissue to dwell at substantially a second target temperature for a
14 desired amount of dwell time.